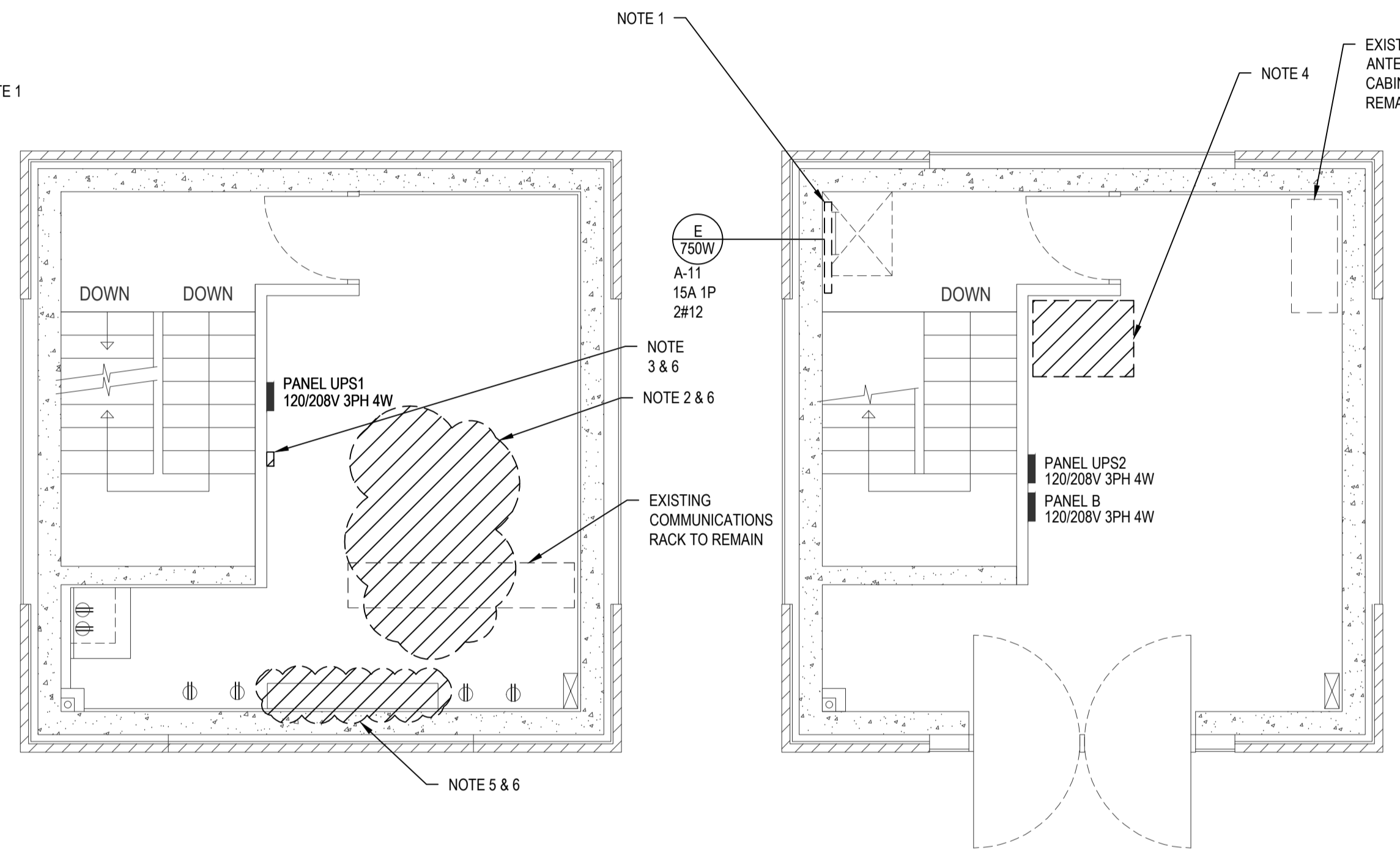
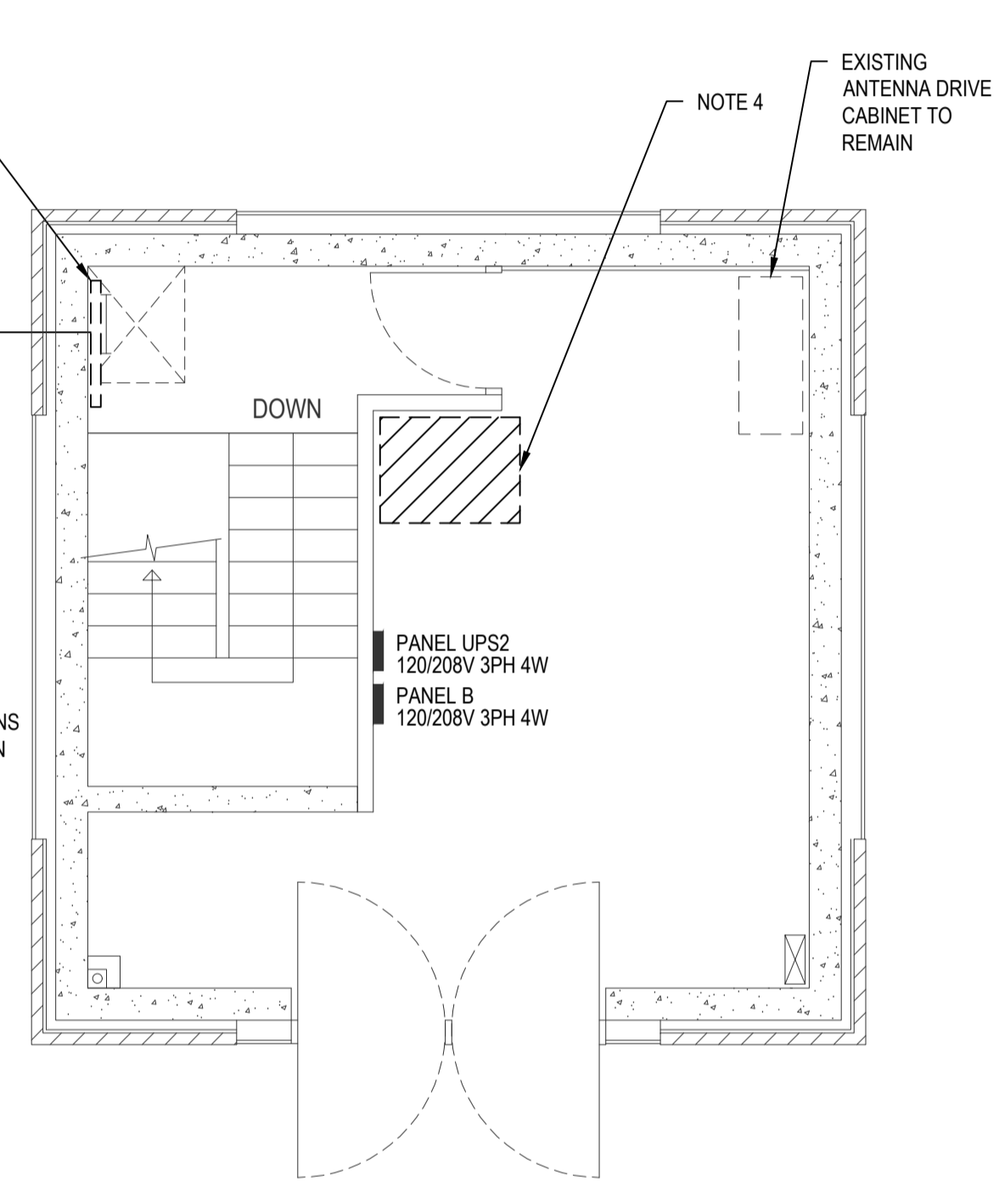


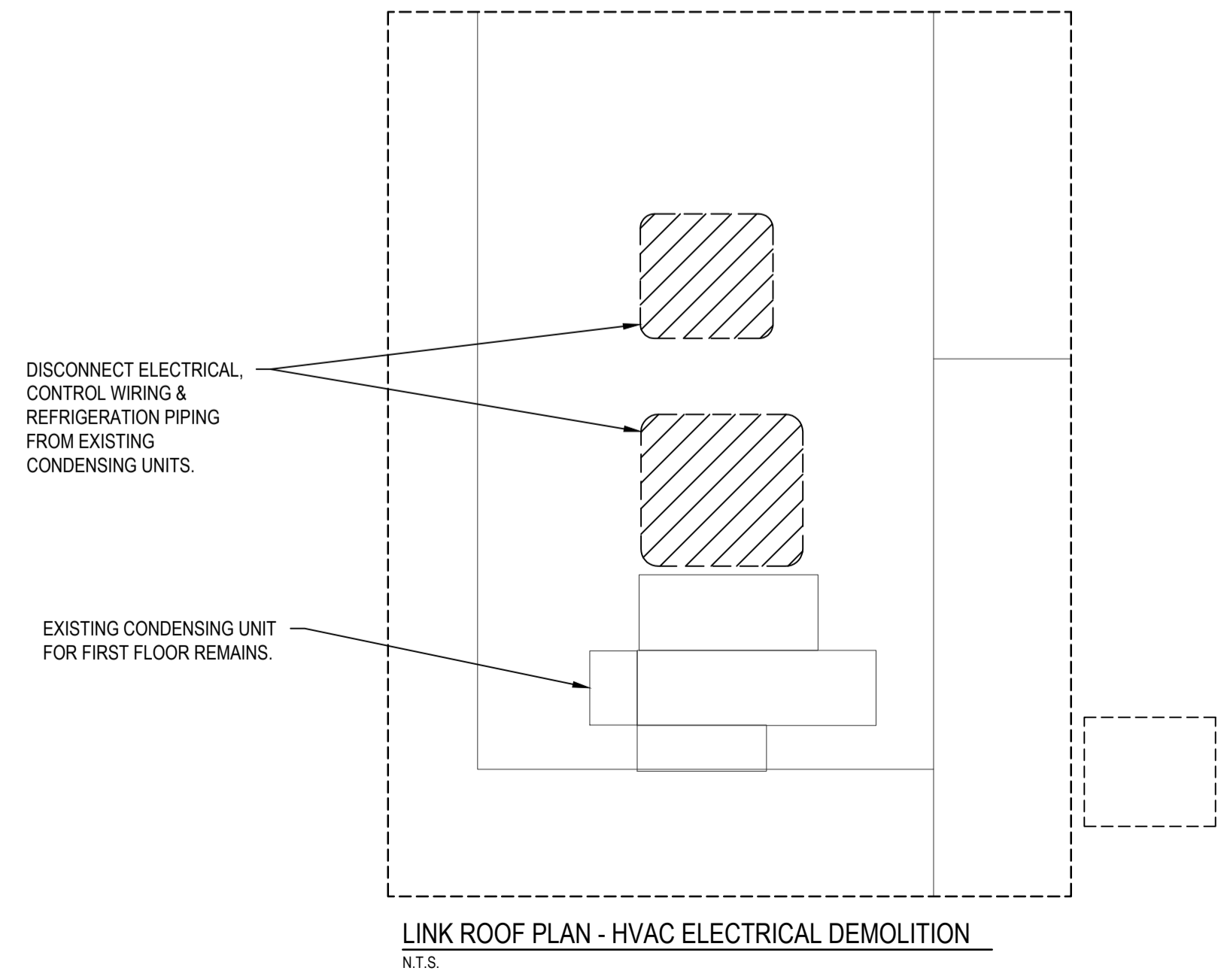
MAIN FLOOR PLAN - POWER AND SYSTEMS  
1:50



SECOND FLOOR PLAN - POWER AND SYSTEMS  
1:50



THIRD FLOOR PLAN - POWER AND SYSTEMS  
1:50



LINK ROOF PLAN - HVAC ELECTRICAL DEMOLITION  
N.T.S.

NOTES:

1. DISCONNECT AND REMOVE EXISTING ELECTRIC HEATER. CABLE TO REMAIN.
2. DISCONNECT AND REMOVE ELECTRICAL, REFRIGERATION AND CONTROL WIRING.
3. REMOVE EXISTING CONTROLS.
4. DISCONNECT EXISTING AIR HANDLING UNIT ELECTRICAL AND CONTROL WIRING.
5. DISCONNECT AND REMOVE ELECTRICAL/CONTROL WIRING AND CONTROL PANEL FOR ECONOMIZER. CONTRACTOR TO FIELD CONFIRM SUPPLY CIRCUIT FOR POWER FEED.
6. CONTRACTOR SHALL COORDINATE THEIR DEMOLITION SCHEDULE WITH OPERATORS ON SECOND LEVEL TO ENSURE THERE IS NO INTERRUPTIONS WITH THEIR OPERATIONS.

REV	DATE	DESCRIPTION	BY
B	2021-12-17	ISSUED FOR TENDER	RAM
A	2021-11-05	ISSUED FOR CLIENT REVIEW	RAM

SEAL:

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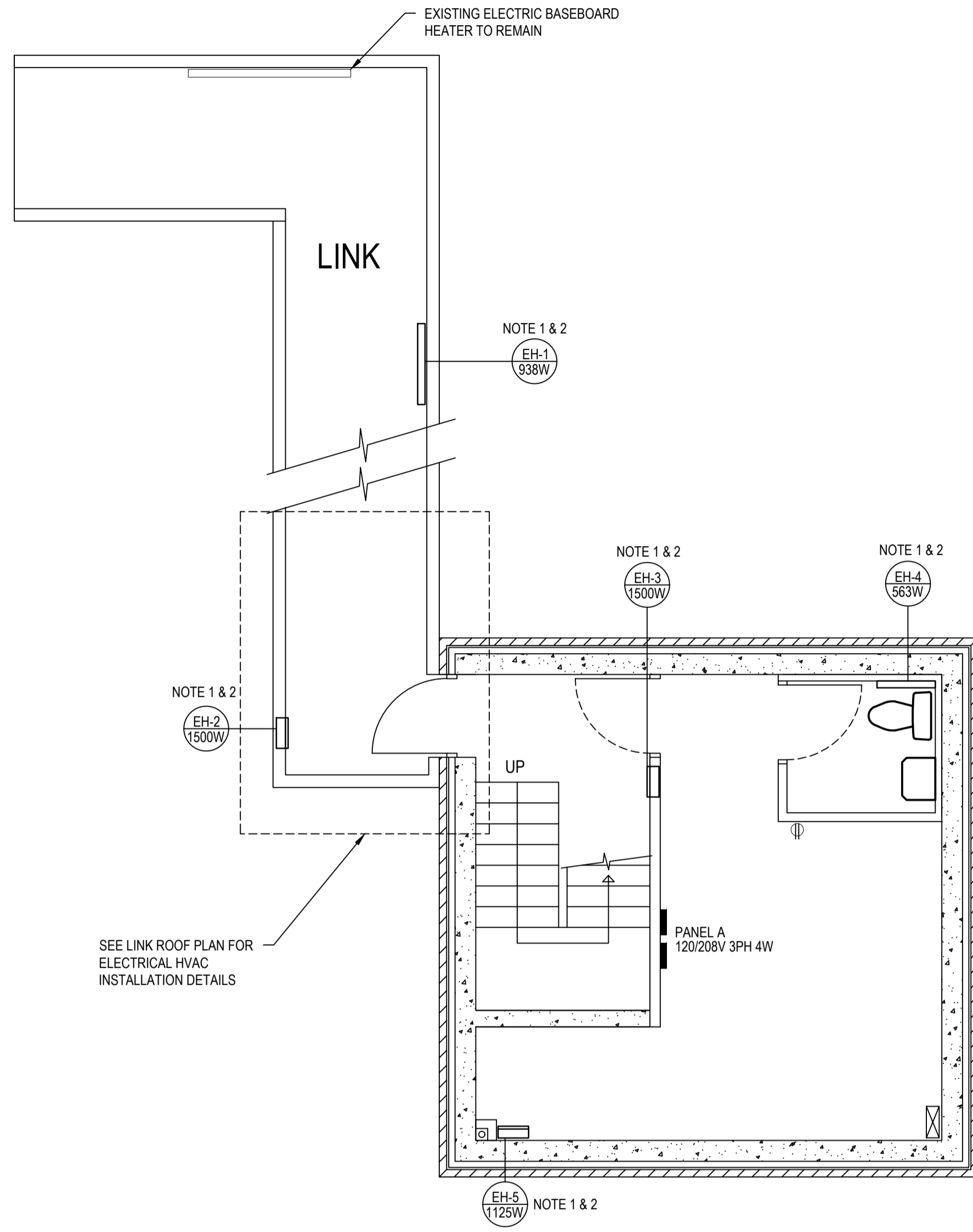
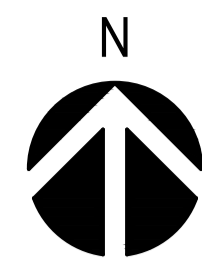
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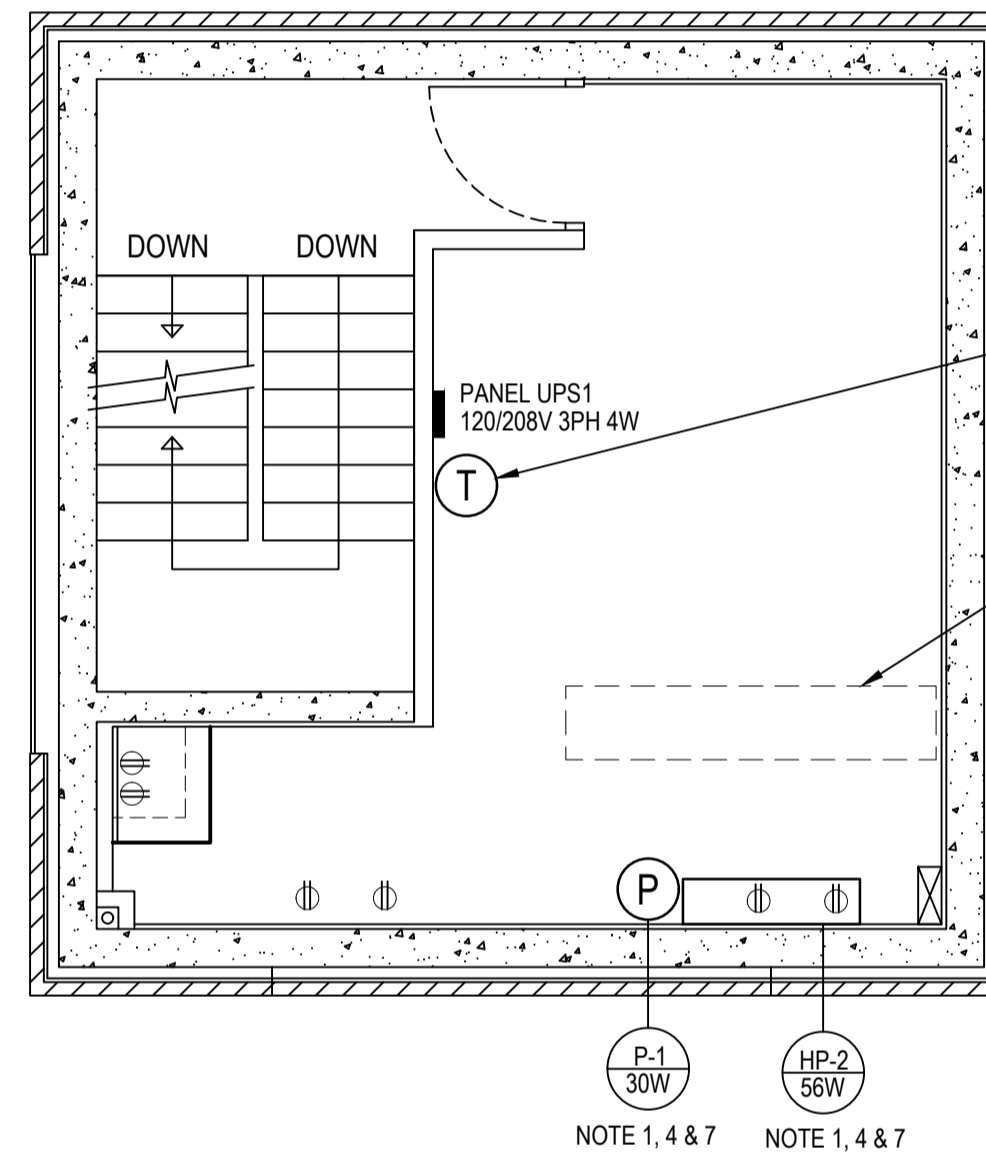
PROJECT: CSA ANTENNA SUPPORT BLDG.

TITLE: ANTENNA SUPPORT BUILDING  
FLOOR PLANS  
ELECTRICAL  
DEMOLITION

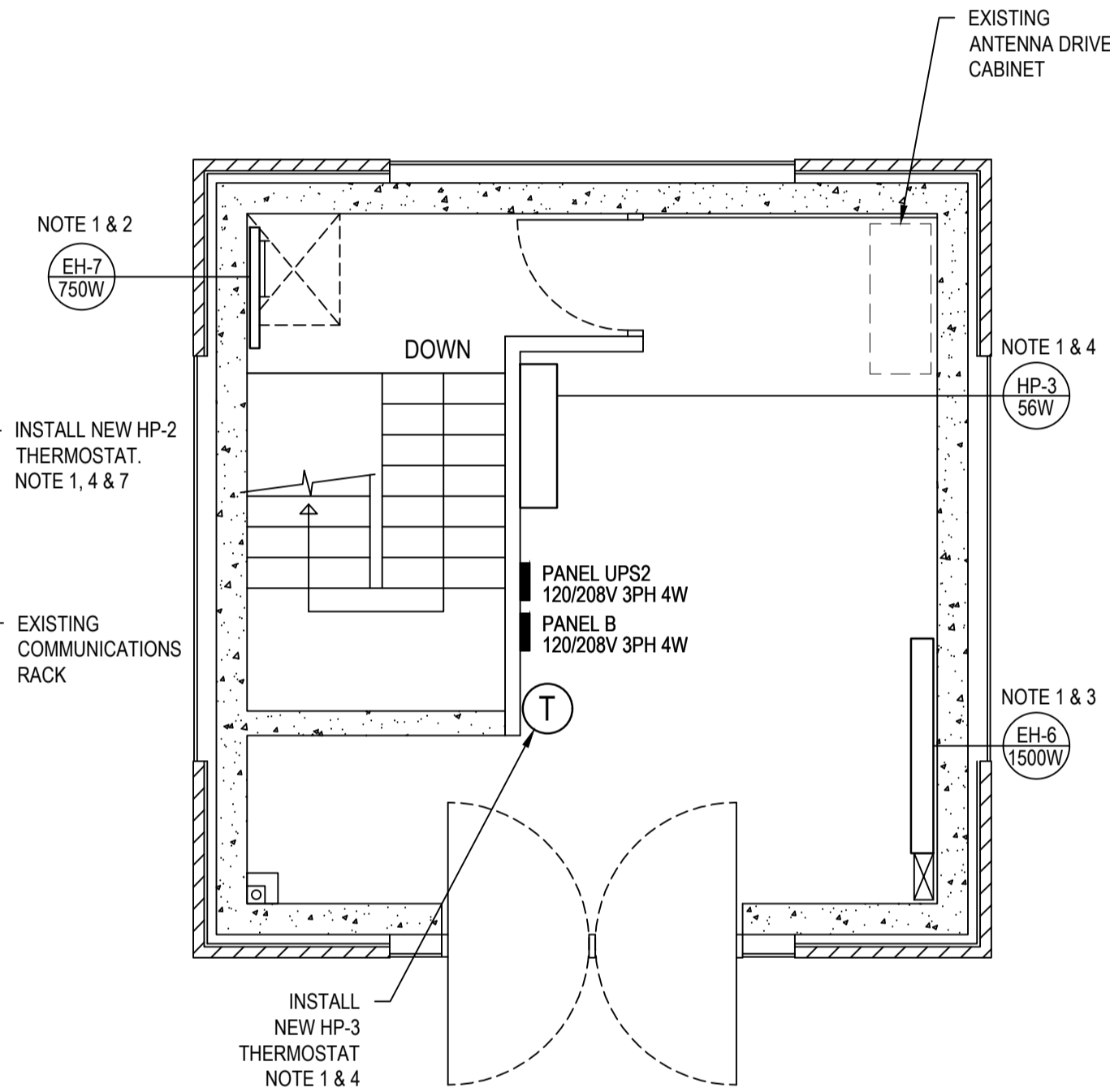
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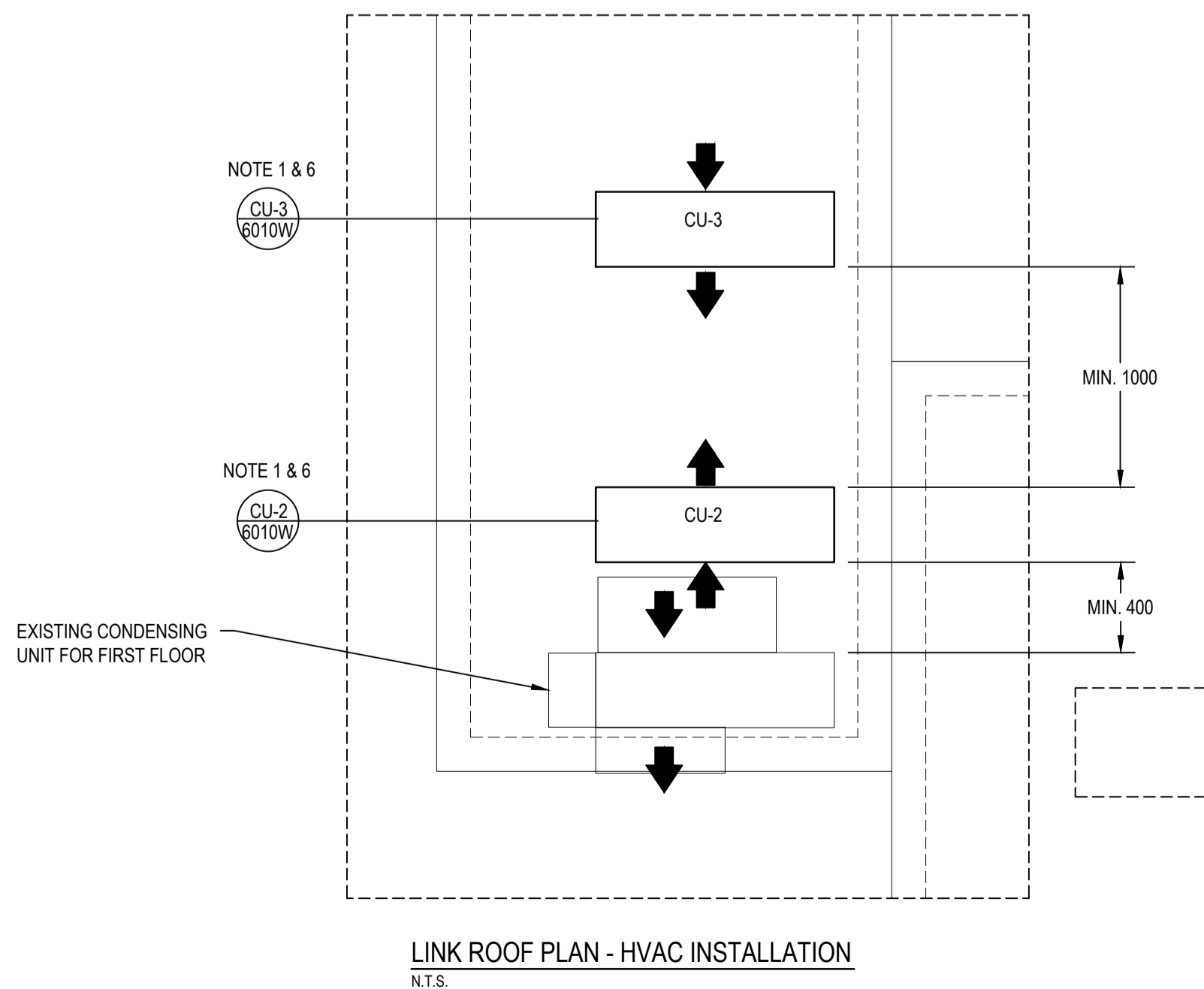
MAIN FLOOR PLAN - POWER AND SYSTEMS  
1:50



SECOND FLOOR PLAN - POWER AND SYSTEMS  
1:50



THIRD FLOOR PLAN - POWER AND SYSTEMS  
1:50

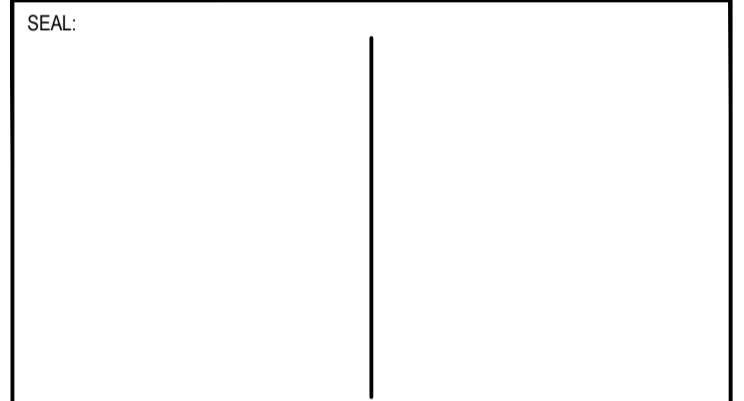


LINK ROOF PLAN - HVAC INSTALLATION  
N.T.S.

NOTES:

1. ALL EQUIPMENT AND ACCESSORIES SHALL BE SUPPLIED BY MECHANICAL CONTRACTOR. SEE DRAWING E-300 EQUIPMENT SCHEDULES AND DETAILS.
2. INSTALL NEW ELECTRIC HEATER AT EXISTING WIRE TERMINATIONS.
3. INSTALL NEW ELECTRIC HEATER AND ROUTE NEW WIRING TO PANEL B.
4. INSTALL WIRING AND THERMOSTAT CONTROLS FOR INDOOR WALL MOUNTED HEAT PUMPS HP-2 & HP-3.
5. ELECTRICAL TO LOCATE AND UTILIZE RECEPTACLE USED BY PREVIOUS PUMP.
6. INSTALL CU-2 & CU-3 WIRING & CONTROLS.
7. CONTRACTOR SHALL COORDINATE THEIR INSTALLATION SCHEDULE WITH OPERATORS ON SECOND LEVEL TO ENSURE THERE IS NO INTERRUPTIONS WITH THEIR OPERATIONS.

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CLIENT:

CANADIAN SPACE AGENCY

CLIENT REF. # --

PROJECT:

CSA ANTENNA SUPPORT BLDG.

TITLE:

ANTENNA SUPPORT BUILDING  
FLOOR PLANS  
ELECTRICAL  
INSTALLATION

DRAWING NUMBER:

E-200

REV:

B

ELECTRIC HEAT SCHEDULE												
TAG	SERVICE/LOCATION	TYPE	MAKE	MODEL	ELECTRICAL		PANEL	CCT (BKR)	POWER CABLE	CONTROLS	REMARKS	NOTE
					(W)	(V/Ø)						
EH-1	LINK/EAST	BASEBOARD HEATER	OUELLET	OFM1258	938	208/1	A	23/25 (30A)	EXISTING	INTEGRAL	LINK HEATER; NO CABLE NOR BREAKER CHANGES	2
EH-2	LINK/SOUTH	FORCE FLOW HEATER	OUELLET	OAC02000-T	1500	208/1	A	23/25 (30A)	EXISTING	INTEGRAL	LINK HEATER; NO CABLE NOR BREAKER CHANGES	2
EH-3	MAIN FLOOR/STAIRWELL	FORCE FLOW HEATER	OUELLET	OAC02000-T	1500	208/1	A	24/26 (30A)	EXISTING	INTEGRAL	ROOM 101 HEATER; NO CABLE NOR BREAKER CHANGES	2
EH-4	MAIN FLOOR/WASHROOM	BASEBOARD HEATER	OUELLET	ORM0752	563	120/1	A	28 (15A)	EXISTING	INTEGRAL	WASHROOM HEATER; NO CABLE NOR BREAKER CHANGES	2
EH-5	MAIN FLOOR/SOUTH	FORCE FLOW HEATER	OUELLET	OAC01500-T	1125	208/1	A	27/29 (30A)	EXISTING	INTEGRAL	ROOM 103 HEATER; NO CABLE NOR BREAKER CHANGES	2
EH-6	THIRD FLOOR/EAST	BASEBOARD HEATER	OUELLET	OFM2008	1500	208/1	B	10/12 (15A)		INTEGRAL	NEW THIRD FLOOR HEATER/CIRCUIT	1, 2
EH-7	THIRD FLOOR/WEST	BASEBOARD HEATER	OUELLET	OFM1002	750	120/1	A	11 (15A)	EXISTING	INTEGRAL	ROOF HATCH AREA HEATER	2

AC SCHEDULE												
TAG	SERVICE/LOCATION	TYPE	MAKE	MODEL	ELECTRICAL		PANEL	CCT (BKR)	POWER CABLE	CONTROLS	REMARKS	NOTE
					(W)	(V/Ø)						
HP-2	SECOND FLOOR/SOUTH	HEAT PUMP/AC	MITSUBISHI	PKA-A36KA7	56	208/1, 24VDC	N/A	(BY MANUF)	3#12	CARRIED ON 3C CABLE; S1/S2/S3 TERMINALS TIED TO CU-2	REPLACES EXISTING AC-2 UNIT; SUBFED FROM OUTDOOR CU-2	2
HP-3	THIRD FLOOR	HEAT PUMP/AC	MITSUBISHI	PKA-A36KA7	56	208/1, 24VDC	N/A	(BY MANUF)	3#12	CARRIED ON 3C CABLE; S1/S2/S3 TERMINALS TIED TO CU-3	REPLACES EXISTING AC-3 UNIT; SUBFED FROM OUTDOOR CU-3	2
CU-2 (New)	SECOND FLOOR/SOUTH ROOF	CONDENSING UNIT	MITSUBISHI	PUZ-HA36NHA5	6010	208/1	B	2/4 (40A)	2#8	WALL-MOUNTED PAC-YT53CRAU; 2#16 CABLED TO HP-2	LOAD IS MAXIMUM POWER INPUT AS PUBLISHED	1, 2
CU-3 (New)	THIRD FLOOR/SOUTH ROOF	CONDENSING UNIT	MITSUBISHI	PUZ-HA36NHA5	6010	208/1	B	6/8 (40A)	2#8	WALL-MOUNTED PAC-YT53CRAU; 2#16 CABLED TO HP-3	LOAD IS MAXIMUM POWER INPUT AS PUBLISHED	1, 2

PUMP SCHEDULE												
TAG	SERVICE/LOCATION	TYPE	MAKE	MODEL	ELECTRICAL		PANEL	CCT (BKR)	POWER CABLE	CONTROLS	REMARKS	NOTE
					(W)	(V/Ø)						
P-1	HP-2&3/SECOND FLOOR	CONDENSATE PUMP	FRANKLIN	VCMA-15	30	120/1	TBD	TBD	EXISTING	INTEGRAL	REPLACES EXISTING; PLUG IN TO EXISTING RECEPTACLE	2

NOTES:

- 3P BREAKERS IN POSITIONS 2/4/6 AND 8/10/12 SHALL BE REMOVED TO MAKE SPACE FOR CU-2, CU-3, AND EH-6(THIRD FLOOR) FEEDER BREAKERS.
- ELECTRIC HEATERS (EH-1 TO EH-7), HEAT PUMPS (HP-2 & HP-3), CONDENSERS (CU-2 CU-3) AND CONDENSATE PUMP (P-1) SHALL BE SUPPLIED BY MECHANICAL CONTRACTOR.

REVISION:			
REV	DATE	DESCRIPTION	BY
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A	2021-11-05	ISSUED FOR CLIENT REVIEW	RAM

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PROJECT NUMBER: 211-11106-00

CLIENT:

**CANADIAN SPACE AGENCY**

CLIENT REF. #: --

PROJECT:

**CSA ANTENNA SUPPORT BLDG.**

TITLE:

**ANTENNA SUPPORT BUILDING**  
 FLOOR PLANS  
 ELECTRICAL  
 SCHEDULES

DRAWING NUMBER: **E-300** REV: **B**

**ELECTRICAL GENERAL REQUIREMENTS**

**GENERAL**

- EXCEPT WHERE EXPLICITLY NOTED, INCLUDE ALL LABOR, PRODUCTS AND SERVICES NECESSARY TO PERFORM THE WORK DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS.
- COMPLY WITH THE LATEST ADOPTED EDITION OF THE CANADIAN ELECTRICAL CODE, AS WELL AS MUNICIPAL AND PROVINCIAL CODES AND REGULATIONS AND THE LOCAL AUTHORITIES HAVING JURISDICTION. WHERE WORK DESCRIBED IN THE DRAWINGS OR SPECIFICATIONS EXCEEDS MINIMUM STANDARDS, APPLY THE MOST STRINGENT INTERPRETATION.
- EXAMINE THE DRAWINGS AND SPECIFICATIONS OF ALL DIVISIONS AND BECOME FULLY FAMILIAR WITH THE WORK PRIOR TO SUBMITTING TENDER. SHOULD DISCREPANCIES EXIST IN THE CONTRACT DOCUMENTS, EITHER WITHIN THIS DIVISION OR WITH OTHER DIVISIONS, OBTAIN A RULING FROM THE CONSULTANT PRIOR TO SUBMITTING TENDER. IF NO SUCH RULING IS REQUESTED, ALLOW FOR THE MOST EXPENSIVE ALTERNATIVE.
- COORDINATE WITH THE OWNER TO VISIT THE PROJECT SITE AND BECOME FAMILIARIZED WITH SITE CONDITIONS PRIOR TO SUBMITTING TENDER. CHANGE ORDERS WILL NOT BE GRANTED FOR WORK THAT IS EVIDENT BASED ON A VISUAL OBSERVATION OF THE PROJECT SITE.
- PERFORM WORK WITH A COMPETENT FOREMAN AND ENOUGH QUALIFIED TRADESPEOPLE TO ENSURE THE PROJECT IS COMPLETED ON SCHEDULE. COMPLETE WORK UNDER THE ON-SITE DIRECTION OF A JOURNEYMAN ELECTRICIAN.
- PRIOR TO THE COMMENCEMENT OF THE WORK, PAY FOR AND OBTAIN ALL REQUIRED PERMITS. AT THE CONCLUSION OF THE PROJECT, PROVIDE A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTION AUTHORITY.
- PAY UTILITY CHARGES FOR NEW AND TEMPORARY SERVICES. COORDINATE INSTALLATION WITH UTILITIES.
- IN ALL AREAS REQUIRING TRENCHING OR CORE DRILLING THROUGH EXISTING FLOOR SLAB FOR ELECTRICAL SERVICES, ALLOW FOR ALL NECESSARY RADIOGRAPHY TO LOCATE HIDDEN ELECTRICAL SERVICES, STRUCTURAL REINFORCING, ETC., AND INCLUDE ALL COSTS IN TENDER PRICE. COORDINATE THIS WORK WITH THE OWNER/LANDLORD AND/OR TENANT COORDINATOR REGARDING SCHEDULING, AND ADHERE TO THE OWNER'S/LANDLORD'S REQUIREMENTS. SUBMIT CORE DRILLING PLAN TO A STRUCTURAL ENGINEER FOR THEIR REVIEW. OBTAIN WRITTEN APPROVAL FROM STRUCTURAL ENGINEER AND LANDLORD BEFORE COMMENCING WORK.

**SUBMITTALS**

- PROVIDE SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT AND MATERIALS, COMPRISING OF ALL TECHNICAL INFORMATION NECESSARY TO EVALUATE EACH PRODUCT, SPECIFIC TO THE REQUIREMENTS OF THIS PROJECT. INCLUDE ON EACH SHOP DRAWING THE PROJECT NAME AND CONTRACTOR'S REVIEW STAMP AND SIGNATURE.
- SUBMIT A COPY OF EACH SHOP DRAWING IN ELECTRONIC PDF FORMAT. PDF DOCUMENTS GENERATED BY SCANNING TECHNOLOGY ARE NOT ACCEPTABLE. ALL SHOP DRAWINGS MUST BEAR AN APPROVAL STAMP AND BE SIGNED BY THE CONTRACTOR.
- PROVIDE DETAILED PHOTOS CLEARLY DOCUMENTING PROGRESS AT KEY PHASES OF CONSTRUCTION AND IN COORDINATION WITH PROGRESS CLAIMS. INCLUDE PRE/POST DEMOLITION, TRENCHING AND UNDERGROUND INSTALLATIONS PRIOR TO BACKFILL AND CONCRETE, ROUGH-IN, AND SUBSTANTIAL COMPLETION.

**CLOSEOUT SUBMITTALS**

- WHERE APPLICABLE, PROVIDE A DIGITAL COPY AND THREE (3) OPERATIONS & MAINTENANCE MANUALS IN THREE-POST HARD-BACKED BINDER AT COMPLETION OF THE PROJECT. INCLUDE LIST OF SUPPLIERS, FINAL INSPECTION CERTIFICATE, SHOP DRAWINGS, MANUFACTURER'S INSTALLATION MANUALS AS SUPPLIED WITH THE EQUIPMENT OR DEVICE, MAINTENANCE PROCEDURES, SPARE PARTS LIST, TEST REPORTS, VERIFICATION DOCUMENTS, RECORD DRAWINGS AND OWNER TRAINING DOCUMENTATION. SEPARATE EACH SECTION WITH TABS. INCOMPLETE OR POORLY PRODUCED MANUALS WILL NOT BE ACCEPTED.
- PRELIMINARY OPERATIONS & MAINTENANCE MANUALS MUST BE SUBMITTED PRIOR TO 70% PROJECT COMPLETION. NO FURTHER PROGRESS WILL BE PERMITTED OTHERWISE. COMPLETED OPERATIONS & MAINTENANCE MANUALS SHALL BE SUBMITTED AND APPROVED PRIOR SUBSTANTIAL COMPLETION.
- KEEP ONE SET OF PROJECT DRAWINGS ON SITE AT ALL TIMES TO BE USED AS RECORD DRAWINGS. RECORD ALL CHANGES AND REVISIONS ON DRAWINGS IN RED PENCIL. ALL UNDERGROUND AND RISER CONDUITS, PANEL FEEDS, CONDUIT RUNS 200 AMP AND OVER, AND MAIN COMMUNICATIONS TRAY AND AREA CONDUITS SHALL BE MARKED ON PLANS. AT THE CONCLUSION OF THE PROJECT, SUBMIT RECORD DRAWINGS IN AUTOCAD FORMAT.

**WARRANTY**

- SUBMIT A WRITTEN WARRANTY STATING THAT ALL MATERIALS AND WORKMANSHIP WILL BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SUBSTANTIAL PERFORMANCE OF WORK. THE WARRANTY PERIOD SHALL NOT BEGIN UNTIL:
  - ELECTRICAL OPERATING AND MAINTENANCE MANUALS ARE SUBMITTED AND APPROVED.
  - SYSTEMS DEMONSTRATION AND TRAINING IS COMPLETED, AND SYSTEMS DEMONSTRATION CERTIFICATE IS SUBMITTED.

**COORDINATION WITH OTHER DIVISIONS**

- COORDINATE THE INSTALLATION OF ELECTRICAL EQUIPMENT WITH WORK BY ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ALL OTHER DISCIPLINES. NOTIFY THE CONSULTANT OF CONFLICTS PRIOR TO INSTALLATION TO ENSURE RE-WORK IS NOT REQUIRED AND WITH SUFFICIENT TIME TO PREVENT DELAYS.
- MAINTAIN SEPARATION BETWEEN ELECTRICAL WIRING SYSTEMS AND BUILDING PIPING AND DUCTWORK. DO NOT SUPPORT ELECTRICAL EQUIPMENT OR CONDUIT FROM PIPING OR DUCTWORK.
- COORDINATE DEVICE LOCATIONS WITH ARCHITECTURAL MILLWORK AND ELEVATION DRAWINGS. NOTIFY CONSULTANT OF DISCREPANCIES PRIOR TO ROUGH-IN.
- DO NOT CUT STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE CONSULTANT. X-RAY FLOORS AND OBTAIN APPROVAL FROM STRUCTURAL CONSULTANT PRIOR TO CORING. CARRY COST OF CORING, X-RAYING AND STRUCTURAL REVIEW.
- COORDINATE DEMOLITION AND INTALLATION SCHEDULES WITH THE OPERATORS ON SECOND LEVEL TO ENSURE THERE IS NO INTERRUPTIONS WITH THEIR OPERATIONS.

**PRODUCTS**

- ALL MATERIALS ARE TO BE NEW, MEET MINIMUM SPECIFIED REQUIREMENTS, AND BE CERTIFIED BY A STANDARDS COUNCIL OF CANADA ACCREDITED BODY.
- DO NOT SUBSTITUTE SPECIFIED PRODUCTS WITHOUT WRITTEN APPROVAL BY THE CONSULTANT. TO ACHIEVE APPROVAL, PROVE THAT SUBSTITUTIONS MEET OR EXCEED THE QUALITY AND PERFORMANCE OF THE SPECIFIED PRODUCT.
- STORE MATERIALS PRIOR TO INSTALLATION OFF GROUND AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS IN A CLEAN, DRY, WELL-VENTILATED AREA.
- UNIFORMITY OF MANUFACTURER SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM OR TYPE OF EQUIPMENT THROUGHOUT THE BUILDING. MAINTAIN UNIFORMITY OF MANUFACTURER FOR NEW AND EXISTING PRODUCTS IN EACH ELECTRICAL SYSTEM.
- PROVIDE PRODUCTS RATED FOR THE LOCATION IN WHICH THEY ARE INSTALLED, INCLUDING SPRINKLERED AREAS, OUTDOORS, AND HAZARDOUS ENVIRONMENTS.
- INSTALL PRODUCTS FOLLOWING MANUFACTURER RECOMMENDATIONS OR PROJECT DOCUMENTS, WHICHEVER REQUIREMENT IS MORE STRINGENT.

**APPROVED EQUIVALENTS/ALTERNATES**

- APPROVAL OF EQUIVALENT PRODUCTS WILL BE GRANTED ON THE BASIS OF THE MANUFACTURER, AND GENERAL DESIGN ONLY. SUCH APPROVAL DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR AND/OR SUPPLIER FROM PROVIDING ALL NECESSARY COMPONENTS AND FINISHES AS CALLED FOR ON THE DRAWINGS OR IN THE SPECIFICATIONS.
- REQUEST FOR EQUALS MUST BE RECEIVED BY THE ELECTRICAL CONSULTANT AT LEAST WORKING TEN DAYS PRIOR TO TENDER CLOSING.

**SEALING AND FIRESTOPPING**

- SEAL ALL CONDUIT AND CABLE ENTRIES THROUGH OUTSIDE WALLS, SERVICE ROOMS, FIRE SEPARATIONS, AND BETWEEN FLOORS.
- WHEN PENETRATING A FIRE SEPARATION, ENSURE CONTINUITY AND INTEGRITY OF FIRE SEPARATION IS MAINTAINED AND CONFORM TO ULC REQUIREMENTS. WHERE WORK REQUIRES REMOVAL AND REPLACEMENT OF FIRESTOPPING MATERIALS ONCE CONDUIT/CABLE CHANGES HAVE BEEN MADE, ENSURE REPLACEMENT MATERIAL IS SAME AS EXISTING OR REMOVE ALL EXISTING PRIOR TO REPLACEMENT WITH NEW.

**IDENTIFICATION**

- LABEL JUNCTION BOXES AND RECEPTACLES WITH PANEL AND CIRCUIT DESIGNATION. USE ELECTRONIC THERMAL LABEL WITH 3mm BLACK LETTERING.
- COLOUR-CODE OR LABEL EXPOSED CONDUIT, PULL BOXES AND JUNCTION BOXES TO INDICATE THE SYSTEM. FOR EXISTING BUILDINGS, COMPLY WITH EXISTING BUILDING STANDARD.
- LABEL CONDUCTORS WITH PANEL AND CIRCUIT DESIGNATION AT ALL ACCESS POINTS.
- UPDATE ALL PANEL DIRECTORIES AFFECTED BY THIS RENOVATION.

**LOCATION OF BOXES AND WIRING DEVICES**

- DO NOT INSTALL BOXES BACK-TO-BACK IN WALL. ALLOW MINIMUM 150mm HORIZONTAL CLEARANCE BETWEEN BOXES ON OPPOSITE SIDES OF THE WALL. MINIMUM 600mm HORIZONTAL CLEARANCE WHERE BOXES ARE INSTALLED ON OPPOSITE SIDES OF RATED ASSEMBLIES.
- CHANGE LOCATION OF BOXES AND WIRING DEVICES BEFORE INSTALLATION AT NO EXTRA COST PROVIDING DISTANCE DOES NOT EXCEED 3000mm.

**ACCESS PANELS**

- PROVIDE ACCESS PANELS WHERE ELECTRICAL EQUIPMENT SUCH AS JUNCTION BOXES AND REMOTE DRIVERS ARE CONCEALED.

**DEMOLITION**

- REMOVE ABANDONED CONDUIT, BOXES, FITTINGS, ACCESSORIES AND CONDUCTORS TO THE SOURCE OF SUPPLY. REMOVE SUCH MATERIALS FROM SITE.
- TURN OVER SALVAGED EQUIPMENT SUCH AS LUMINAIRES AND DISTRIBUTION EQUIPMENT TO THE OWNER WHERE SPECIFIED IN THESE DOCUMENTS. ALL OTHER REMOVED EQUIPMENT BECOMES PROPERTY OF THE CONTRACTOR.
- WHERE EXISTING EQUIPMENT IS SHOWN TO BE REINSTALLED, USE ONLY THE BEST QUALITY ITEMS.

**TESTING**

- TEST ALL ELECTRICAL SYSTEMS FOR PROPER OPERATION.
- MEGGER ALL FEEDERS. USE A 500V INSTRUMENT FOR CIRCUITS 350V AND BELOW.
- REFER TO INDIVIDUAL PRODUCT SECTIONS FOR ADDITIONAL TESTING REQUIREMENTS.
- INCLUDE ALL TEST RESULTS IN OPERATION AND MAINTENANCE MANUAL.

**CLEANING**

- LEAVE WORK AREA CLEAN AT END OF EACH DAY. REGULARLY REMOVE SURPLUS MATERIAL AND DEBRIS.
- AT COMPLETION OF THE PROJECT, ALL LUMINAIRES AND ELECTRICAL EQUIPMENT TO BE LEFT FREE OF DUST, DEBRIS, PAINT AND FINGERPRINTS. VACUUM AND WIPE CLEAN INTERIORS OF PANELBOARDS, CABINETS AND DISTRIBUTION EQUIPMENT.

**ELECTRICAL PRODUCT REQUIREMENTS**

**WIRE AND CABLE**

- ALL WIRE AND CABLE FOR POWER APPLICATIONS TO BE MINIMUM #12AWG COPPER UNLESS OTHERWISE NOTED. SIZE CABLE FOR VOLTAGE DROP.
- BUILDING WIRE: 600V RW90-XLPE. INSTALL BUILDING WIRE IN CONDUIT.
- BUILDING WIRE BELOW GRADE: 600V RWU90-XLPE. INSTALL WIRING BELOW GRADE IN PVC CONDUIT OR AS INDICATED ON THE DRAWINGS.
- TECK CABLE: 600V RW90-XLPE WITH ALUMINUM ARMOR AND PVC JACKET. USE ONLY WHERE INDICATED ON DRAWINGS OR APPROVED BY THE CONSULTANT.
- INSTALL CABLES PARALLEL OR PERPENDICULAR TO BUILDING LINES, SECURELY FASTENED TO BUILDING STRUCTURE, CHANNEL SUPPORTS OR AS INDICATED ON DRAWINGS. DROOPING/SAGGING CABLES OR CABLES WEAVING THROUGH BUILDING SYSTEMS OR STRUCTURE WILL NOT BE ACCEPTED.
- SUPPORT CABLE WITH STEEL STRAPS. USE OF PLASTIC TIE WRAPS WILL NOT BE ACCEPTED.
- SUPPORT ARMORED CABLE WITH METAL CABLE CLIPS APPROVED FOR USE WITH SUSPENDED ACOUSTIC CEILING HANGER SYSTEMS. USE OF PLASTIC TIE WRAPS WILL NOT BE ACCEPTED.

**GROUNDING**

- GROUND WIRES: STRANDED COPPER CW GREEN JACKET UNLESS OTHERWISE SHOWN. RUN GROUND WIRES IN CONDUIT. CONDUIT SHALL NOT BE USED AS A GROUND.
- GROUND ALL FRAMES AND ENCLOSURES OF ELECTRIC EQUIPMENT, DUCT SYSTEMS, CABLE TRAYS AND BUILDING STEEL THROUGH THE CONDUIT SYSTEM OR GROUND WIRE.

**OUTLET BOXES**

- PROVIDE OUTLET BOXES SUITABLE FOR THE APPLICATION AND LOCATION OF THE DEVICES. ALL BOXES SHALL BE SUFFICIENTLY SIZED FOR NUMBER OF CONDUCTORS IN EACH BOX IN ACCORDANCE WITH CSA C22.1. STACKED OR GANGED BOXES FOR THE PURPOSES OF INCREASING BOX CAPACITY ARE NOT ACCEPTABLE.
- INSTALL BOXES WITH INTEGRAL "WRAPAROUND" SUPPORT BRACKET WHERE INSTALLED ON STEEL STUDS.
- GANGED OR BOXES LARGER THAN 100mm SQUARE SHALL BE MOUNTED ON THE "CADDIE" BRACKETS. WOOD STRAPPING IS NOT ACCEPTABLE.
- INSTALL 102mm SQUARE BOXES WITH A RAISED, SINGLE-GANG ADAPTOR RING (MUD-RING) FOR COMMUNICATIONS OUTLETS

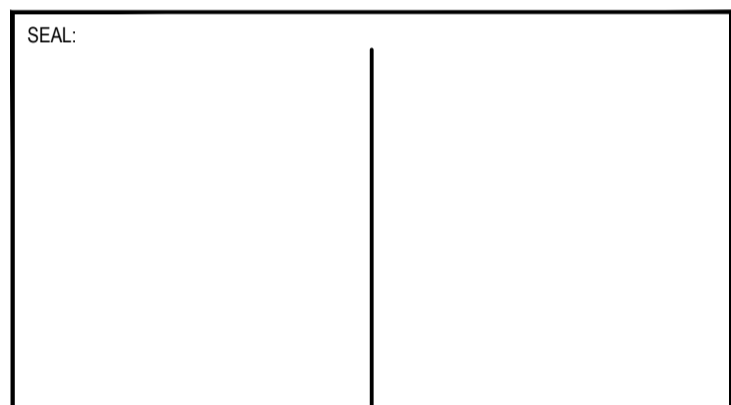
**CONDUIT/RACEWAY**

- CONDUIT: MINIMUM 21mm. RIGID STEEL FOR EXTERIOR OR SERVICE ENTRANCE. RIGID PVC FOR EXTERIOR UNDERGROUND. EMT FOR ALL OTHER APPLICATIONS WHERE PERMITTED BY C.E.C.
- RUN CONDUIT PARALLEL OR PERPENDICULAR TO BUILDING LINES. CONCEAL CONDUIT EXCEPT IN SERVICE ROOMS.
- RUN CONDUITS, CONCEALED OR OTHERWISE, VERTICALLY THROUGH WALLS. CONDUITS RUN HORIZONTALLY WILL NOT BE ACCEPTED.
- SUPPORT CONDUIT HOME-RUNS FROM BUILDING STRUCTURE ON HANGERS.
- PROVIDE 90LB TEST LINE IN ALL EMPTY CONDUITS.
- PROVIDE NYLON INSERTS TO PROTECT CONDUCTORS FROM ABRASION.

**DISTRIBUTION EQUIPMENT**

- MAINTAIN UNIFORMITY OF MANUFACTURER FOR DISTRIBUTION EQUIPMENT AND CIRCUIT BREAKERS.
- ALL DISTRIBUTION EQUIPMENT TO BE FULLY RATED.
- CIRCUIT BREAKERS TO BE INSTALLED IN EXISTING PANELS ARE TO MATCH PANEL MANUFACTURER AND/OR EXISTING BREAKER TYPES.

REVISION:			
REV	DATE	DESCRIPTION	BY
B	2021-12-17	ISSUED FOR TENDER	RAM
A	2021-11-05	ISSUED FOR CLIENT REVIEW	RAM



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ORIGINAL SCALE: N.T.S.	DATE: 2021-11-05
APPROVED BY: AS	IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
CHECKED BY: AS	
DRAWN BY (OPTIONAL): RAM	

DISCIPLINE: ELECTRICAL

WSP Canada Inc.  
Address, City, Province Postal Code  
T 888-888-8888 | www.wsp.com

PROJECT NUMBER: 211-11106-00

CLIENT:

**CANADIAN SPACE AGENCY**

CLIENT REF. #: --

PROJECT:

**CSA ANTENNA SUPPORT BLDG.**

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TITLE:

**ANTENNA SUPPORT BUILDING**

FLOOR PLANS  
ELECTRICAL  
GENERAL SPECIFICATIONS

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DRAWING NUMBER: **E-400** REV: **B**

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